

Flight Scientist Report  
Tuesday 6/08/2021 ACTIVATE RF82

Flight Type: Statistical Survey Flight  
Flight Route: KLF1 - ATLIC - ZIBUT - N3630/W07145 - N3645/W06915 and reverse  
Special Notes: See notes from RF81 (morning flight). RF82 was the 2nd flight on this day.

### **King Air**

Pilot report (Wusk):

3.6 hours

Second flight of a two flight day. ACTIVATE statistical research flight. The plan was from KLF1 - ATLIC - ZIBUT - N3630/W07145 - N3645/W06915 and reverse. Flight deviated from plan in that a fuel management issue on the HU25 prevented going out to the turn point, but not soon after the reversal to come home early, they resolved the issue and aircraft reversed course to continue as far as it could on original plan. They turned short by about 50 nm. The UC12 was delayed getting ATC clearance to make the early turn and had to continue east for an extra 30 or so miles. The UC12 had some tailwind help on the return and gained ground to have good coincidence for much of the return. UC-12 aircraft performed nominally and is ready for the next mission. Crew was Coldsnow, Wusk, Seaman.

Flight scientist report (Seaman):

**Flight plan:** KLF1 ATLIC ZIBUT then 2 coordinates points ZIBUT ATLIC KLF1

**Notes:** An issue on the Falcon required a temporary RTB of both aircraft, but the issue was fixed moments later so both planes turned around to return to the original course. Due to the turnarounds, the endpoint had to be moved inward for fuel reasons.

**QNC(s):** Shane Seaman was the operator for HSRL-2, RSP, the cameras, and the sondes.

**HSRL-2:** nominal operation.

**RSP:** nominal operation.

**Cameras:** nominal operation.

**Sondes:** A total of 4 sondes were dropped. One was dropped on a large cloud target.

## Falcon

Pilot report (Slover):

Takeoff: 1330L

Landing: 1700L

ACTIVATE statistical research flight. The plan was from KLFI - ATLIC - ZIBUT - N3630/W07145 - N3645/W06915 and reverse. Flight deviated from plan in that a fuel management issue prevented going out to the turn point, but not soon after the reversal to come home early, we resolved the issue and aircraft reversed course to continue as far as it could on original plan. We turned short by about 50 nm, but had another 50 nm leg with two extra samples between ZIBUT and N3630/W07145. Altitudes flown varied from 500' AGL to 5000' MSL. On this sortie, the autopilot was inoperative, so this may affect the quality of the winds data as stable 3-min legs are not as good as autopilot on.

Flight scientist report (Crosbie):

This flight was hampered by a few aircraft issues. First, some functions of the autopilot system were not functional which meant that pilots had to "hand-fly" resulting in more altitude deviation than usual. This made it challenging to remain in level BCB and ACB legs sometimes. A second issue was related to the fuel system which meant that we were looking at having to return early until the problem was identified and resolved. Because of this, we turned at the first lat-lon waypoint after ZIBUT and returned to ZIBUT before returning back on course. This meant that the end point was cut short. Conditions during this flight were similar to the morning. (2 cloudy, 3 clear)

Eddie:

17:31:19 Takeoff

17:33:30 – 17:35:30 CPC's & SMPS on filter

17:51 Sharp BL @2400 ft

18:03 Autopilot not working so constant altitudes not so constant

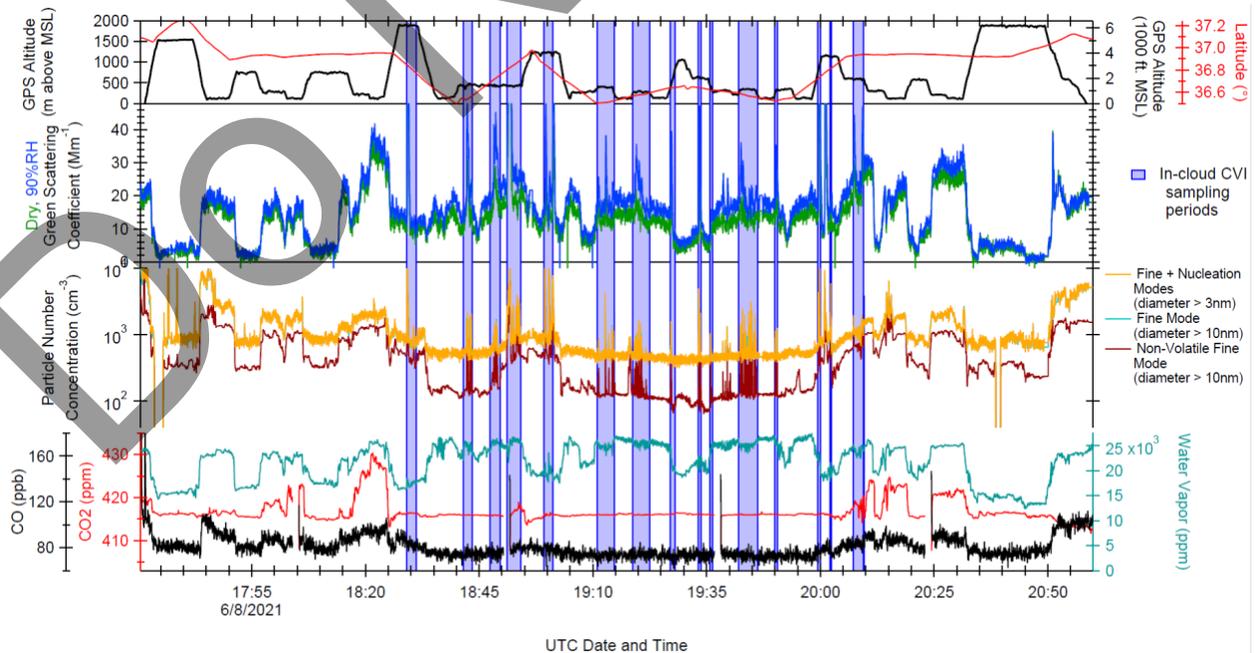
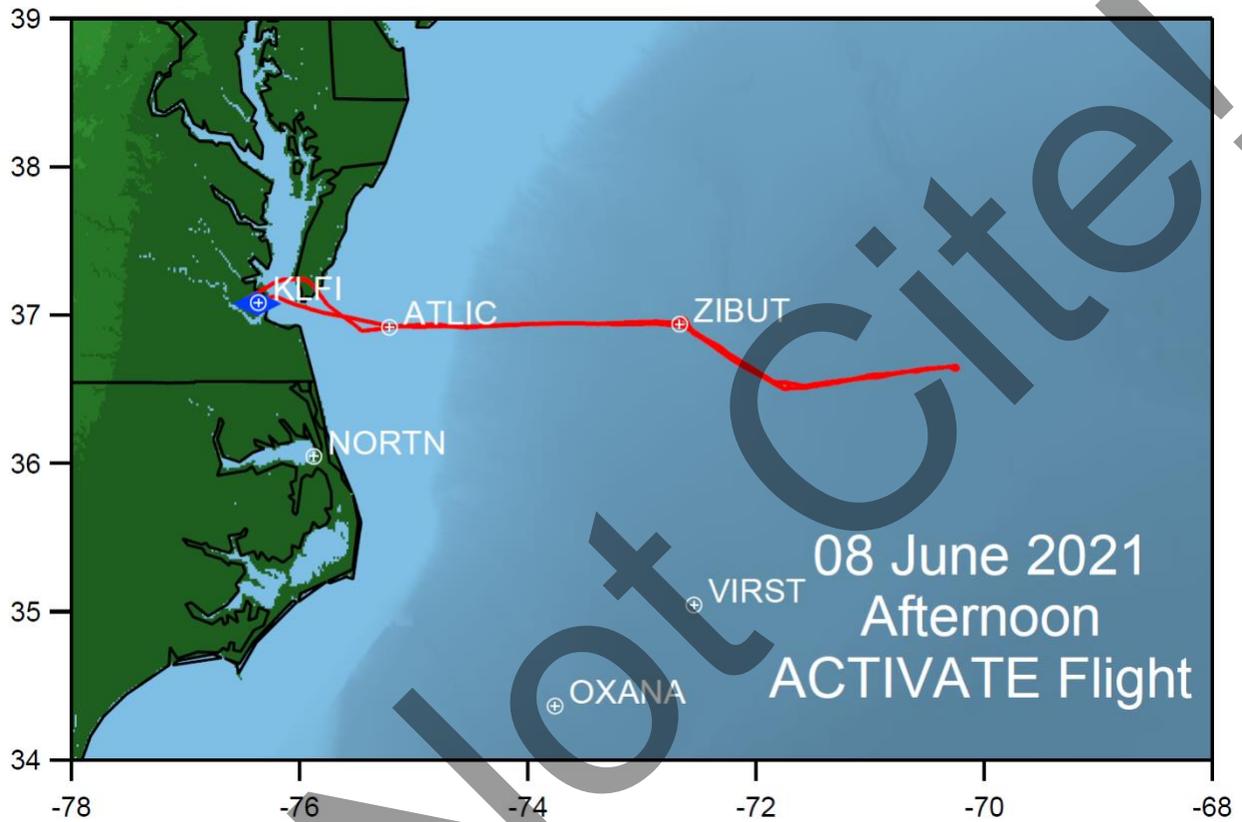
18:50 Had turned back for RTB because of fuel control issues, but pilots found problem which was a switch in wrong position. It was corrected and resumed track. Will have to RTB short of scheduled endpoint.

20:12 Hazy

20:38:30 – 20:39:30 CPC's & SMPS on filter. All went to zero.

20:47:40 Humidifier & WCM turned off in preparation for landing

20:58:49 Landing

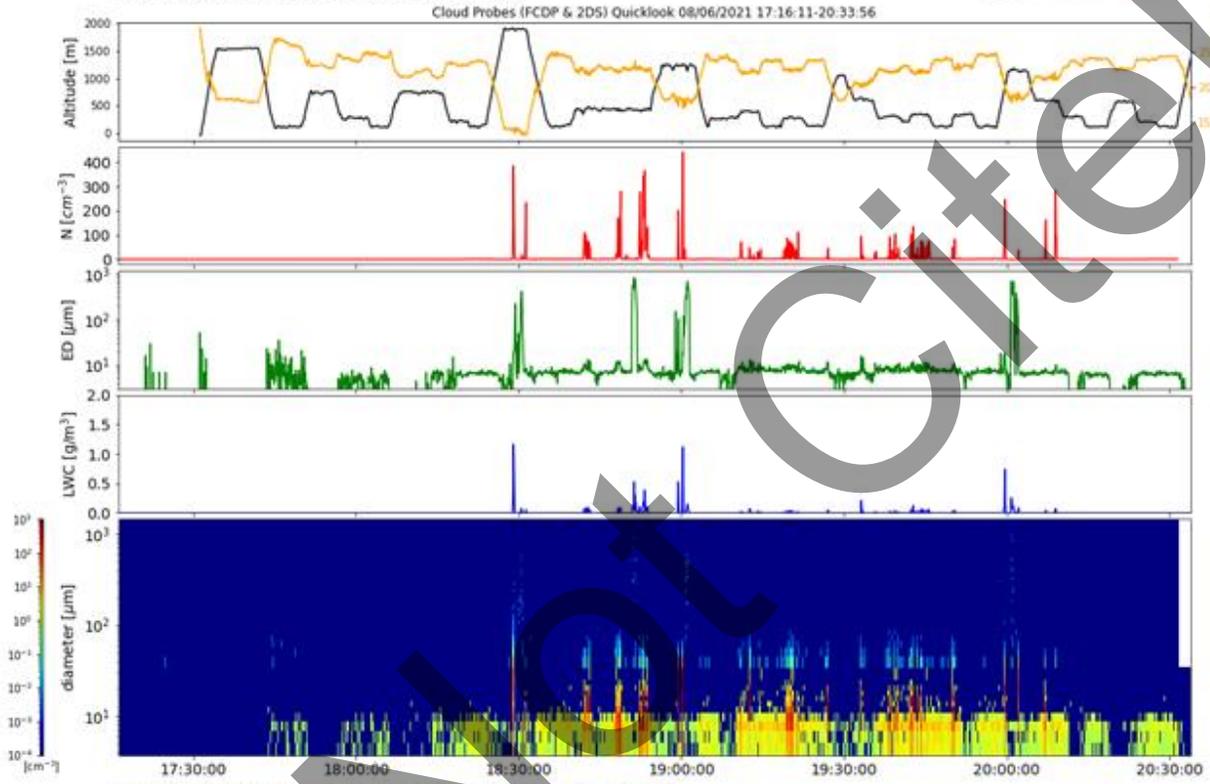


Do Not Cite!

# Quicklook ACTIVATE Cloud Probes (FCDP & 2DS) Quicklook

preliminary data, only for quicklook use

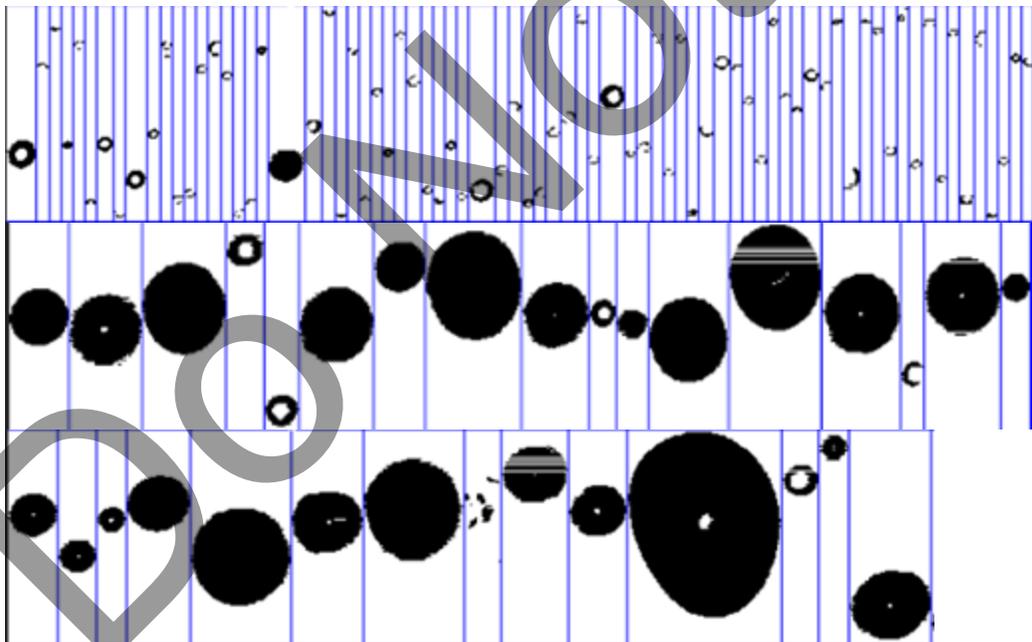
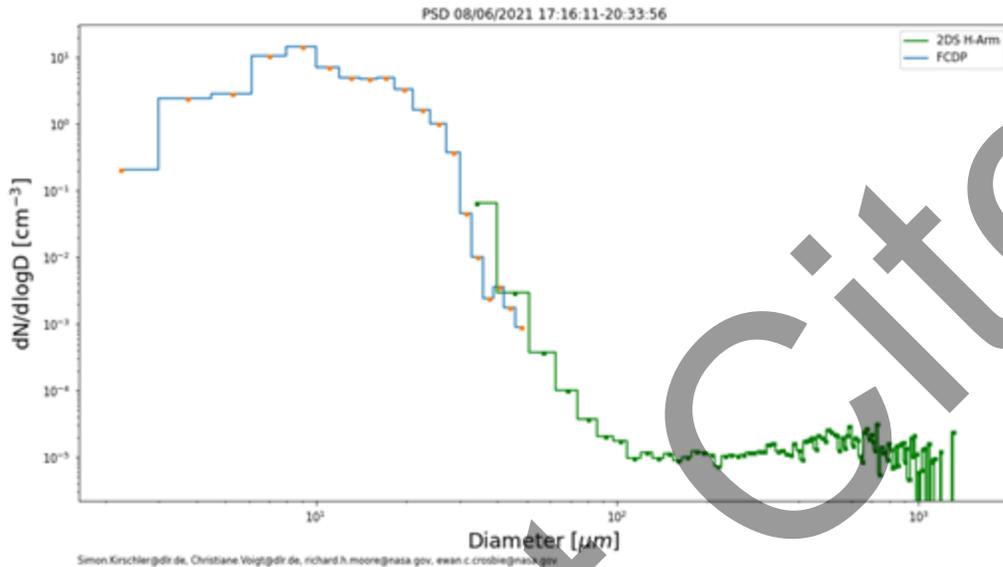
Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



Simon.Kirschler@dlr.de, Christiane.Voigt@dlr.de, richard.h.moore@nasa.gov, ewan.crosbie@nasa.gov

# PSD ACTIVATE

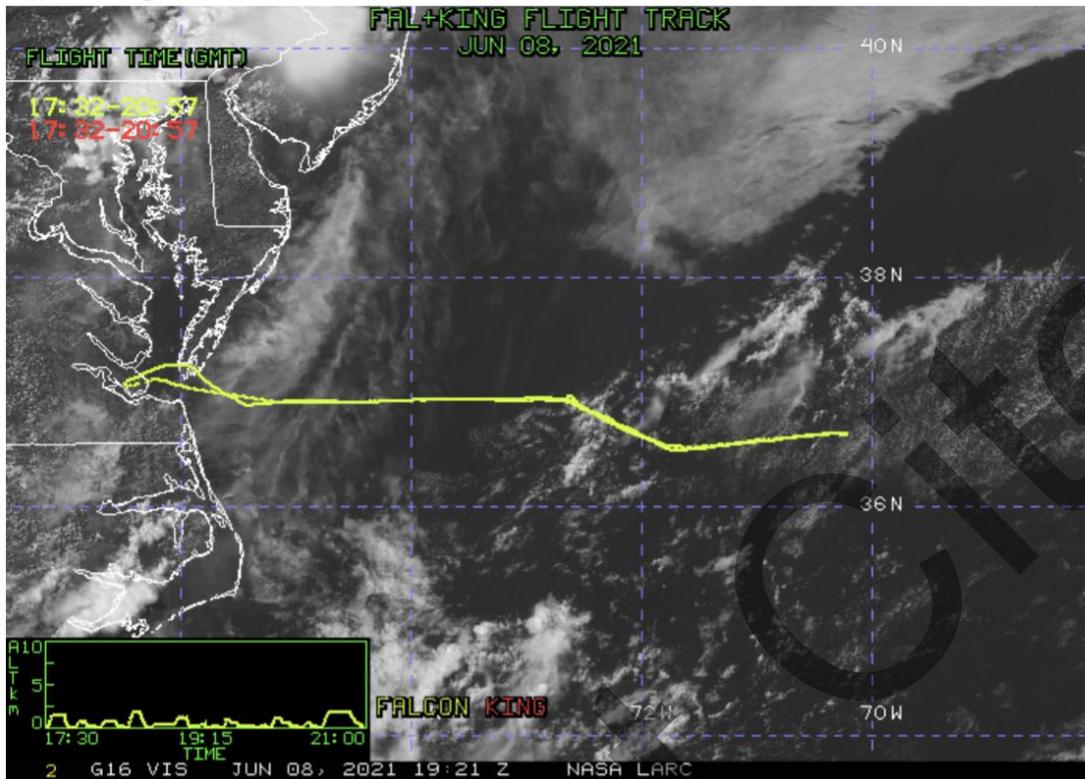
preliminary data, only for quicklook use  
Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



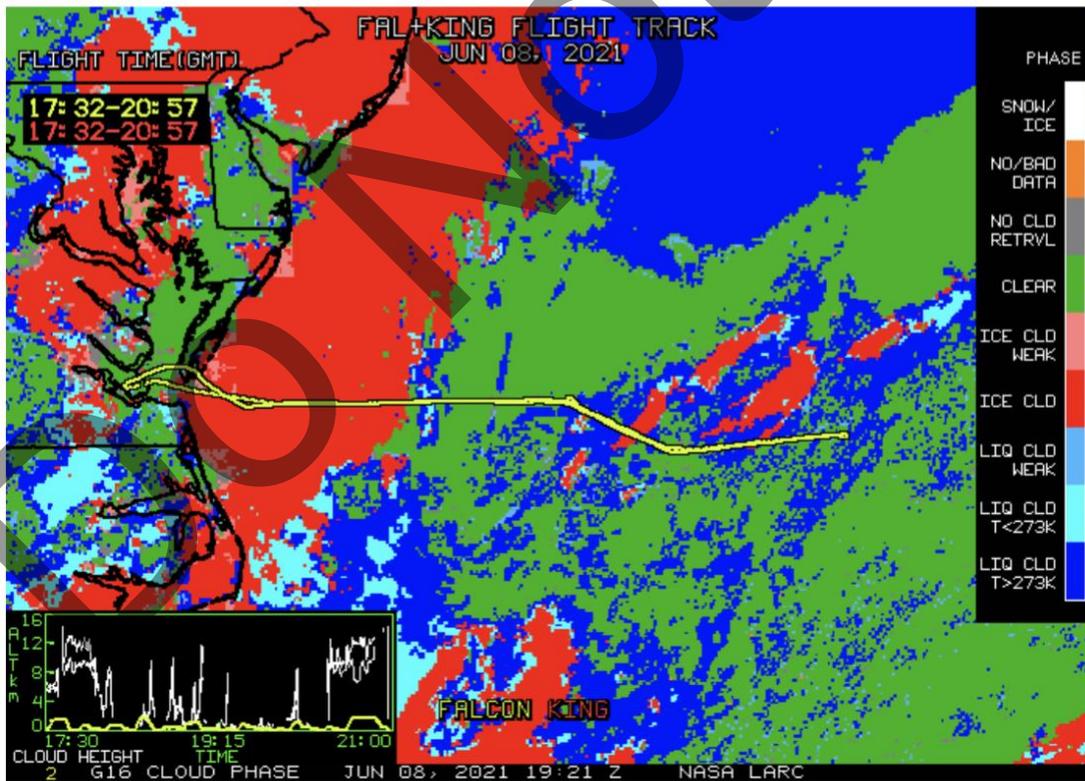
Only pure liquid clouds with drizzle and precipitation.

NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 82, 19:21 UTC Jun 08, 2021

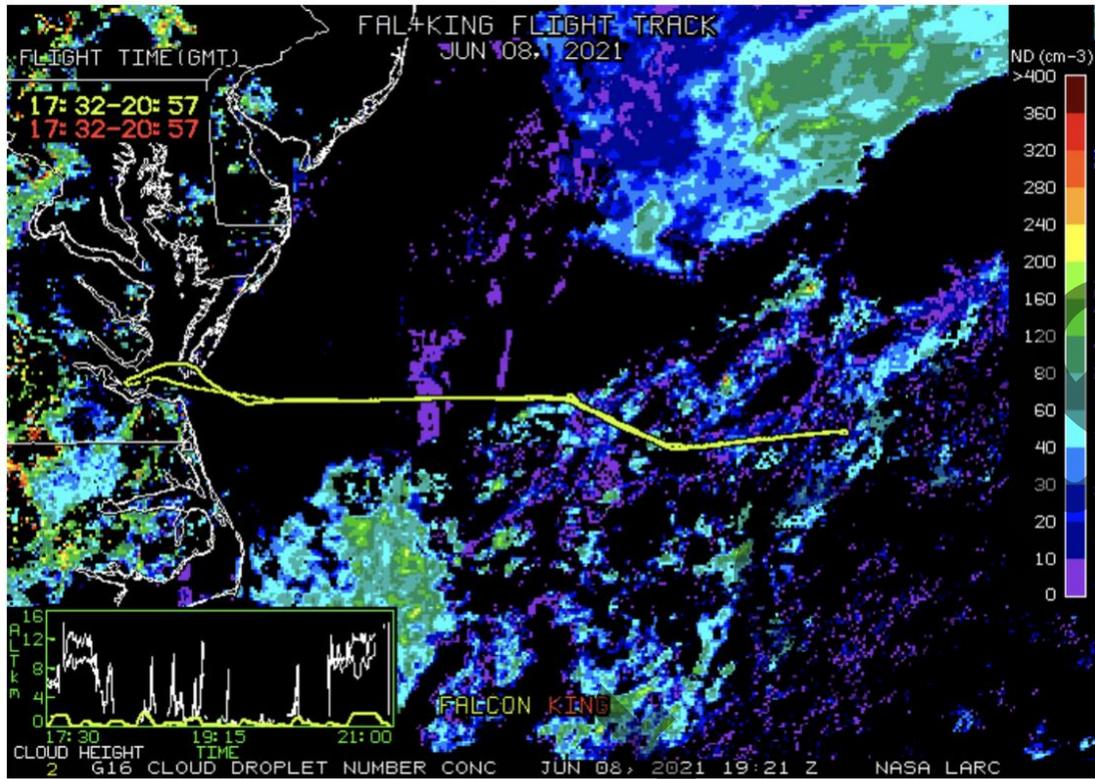
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)

